

which he re-named Lake Leopold. Mr. Thomson did not succeed in reaching the actual shores of the lake.

"The point where we halted was upwards of 7000 feet above the sea, and from the fact that the River Mkafu, which flows into the lake, is only about 3000 feet, at a distance of sixty miles north, I infer that Lake Hikwa is not far from being on a level with Tanganyika. So steeply do the mountains descend, that from the place where we halted we could almost throw stones into the lake; only we lost sight of them before they reached the ground. The general altitude of the surrounding ranges must be quite 8000 to 9000 feet, and they extend in a quite unbroken line all round. At the north end I calculate the breadth of the lake at about twelve miles. Further south the breadth varies from fifteen to twenty miles. Longitudinally it lies north-north-east and south-south-west. Its length, from native report and from my proximity to it in passing between Nyassa and Tanganyika, I conclude to be certainly not less than sixty miles, probably seventy. Between the mountains and the shores there lies a narrow dark green strip of smooth land, apparently representing a once higher level. On this there are many villages, and the ground is highly cultivated. At the north end, as I have already stated, this strip broadens out into a marshy expanse, formed doubtless by the detritus of the River Mkafu."

Although the waters are almost certainly fresh, yet the lake seems to have no outlet. Without accident or obstacle to speak of, the Expedition, proceeding by Unyamwebe, reached Zanzibar, not much more than a year after it set out from Behobeho. Mr. Thomson, with good reason, congratulates himself that he never needed to fire a shot either in offence or defence, and that, besides the loss of Mr. Johnston, he left only one man behind him.

The Expedition is in many ways one of the most successful that ever entered Africa. Not only was it conducted with unusual efficiency, not only were the chiefs and people, with few exceptions, friendly throughout, but for the first time we have obtained trustworthy observations on the geology of the great lake region of Central Africa. The main conclusions reached by Mr. Thomson have already been described by himself in these pages. But he did not confine himself to geology. He gives us a fair idea of the general character of the country traversed, its mineral, vegetable, and animal productions, the characteristics and habits of the people, the nature of the work being done by missionaries, and the capacities of the country for industrial development. On the last point his views are far from being sanguine. He maintains that the resources of Central Africa have been greatly exaggerated, especially as to its minerals. We are inclined to think that on this point he has taken much too gloomy a view, and that, whatever may be the case with the region actually visited by him, there certainly appears to exist, in the districts traversed by Cameron, Livingstone, and more recently by Major Serpa Pinto, stores of iron and copper that may at a future time be turned to great industrial account. Young as Mr. Thomson is, we commend his remarks on missionary work to those whom it most intimately concerns; and we trust that his severe, but evidently just, criticisms on the conduct of the various Belgian expeditions in Africa will receive the attention they deserve from the management

of the International African Association. In the Appendices are given notes on the natural history collections, and Mr. Thomson discusses the geology in detail, suggests that at one period the whole of the lake region of Central Africa must have been covered by the sea, the basin of Tanganyika, however, having been formed subsequently by a great fault or narrow depression of great though unknown depth.

Prefixed to the volumes are portraits of Mr. Johnston and Mr. Thomson, and appended a route map and an interesting geological chart.

OUR BOOK SHELF

Marine Algæ of New England and the Adjacent Coast.
By Dr. W. J. Farlow. (Washington, 1881.)

THIS valuable essay on the "Marine Algæ of New England" is a reprint from the United States Fish Commission Report for 1879. It includes a list of all the species of sea-weeds, with the exception of the diatoms, which are known to occur on the coast of the United States, from New Jersey to Eastport, Me. Prof. Farlow gives in a compact and more or less popular form a description of the various orders and species, and he adds a short account of the general structure and classification of sea-weeds, so that all persons frequenting the coast of New England are thus furnished with a handy and compact manual of the subject. The fifteen excellent plates drawn by J. H. Blake and W. G. Farlow deserve a special notice, as they give details of structure which will enable the text to be understood by an intelligent student.

Since the appearance (1852-57) of Harvey's classic work on the North American Algæ, but few species have been added to the Flora. This is not perhaps so surprising as regards the Florideæ or Fucoïds, to which Harvey paid so much attention; but as regards the unicellular or simple filamentous forms it is a cause of surprise, for Harvey never paid minute attention to these; and it may in part be accounted for that collections do not seem to have been made along the coast in spring. Prof. Farlow gives a most interesting sketch of the geographical distribution of the species met with. Cape Cod is, as was known to Harvey, the dividing line between a marked northern and southern flora, and subsequent observation shows that on the one hand the flora north of the Cape is more decidedly arctic than he supposed, and that on the other hand that south of the Cape is more decidedly that of warm seas. A good share of the commoner species are also natives of Great Britain, another large share are Scandinavian; but while this is the case the marine flora is also marked by the complete absence of many common British species. No members of the order Dictyotaceæ are to be found; no species of Cutleria or Tilopteris are to be met with. The species of Nitophyllum may be said to be wanting. That commonest of our red sea-weeds, *Plocamium coccineum*, is known as native by only one doubtful case. *Fucus canaliculatus*, *Himanthalia lorea* are quite wanting. The nearly ubiquitous *Codium tomentosum* has not yet been found. *Fucus serratus* is very rare, having only one locality recorded for it in the United States and one in Nova Scotia. *Gelidium corneum*, abundant in almost all parts of the world, is only occasionally found in New England, and then only in the starved form known as *G. crinale*.

Prefixed to the orders and genera will be found carefully-written diagnoses, and an artificial key to the genera is also added. The notes in smaller type which are given under the species often contain most valuable critical information, which will command the attention of all phycologists. To the critical students of our native

species of algæ this little manual of the New England species will prove a most welcome volume. They will find in the chapter on the structure and classification facts that were not known in Harvey's day, and which, here collected for them within a brief space, they would otherwise have to search for in the writings of Thuret, Bornet, Janczowski, Rostekinski, Pringsheim, or Reinke.

The Berries and Heaths of Rannoch. (London: G. Bell and Sons, 1881.)

THE berry-bearing plants here described and delineated are eight, viz. *Vaccinium oxycoccus*, *V. Myrtillus*, *V. uliginosum*, *V. vitis Idæa*, *Arctostaphylos uva-ursi*, *A. alpina*, *Empetrum nigrum*, and *Rubus chamaemorus*, all of which do not, strictly speaking, come within the geographical limitation of the title-page. The heaths are three only in number, viz. the common *Erica cinerea* and *Tetralix*, and *Calluna vulgaris*, to which are added two other nearly allied species not actually found within the district, *Andromeda polifolia* and *Loiseleuria (Azalea) procumbens*. In the letterpress it is not to be expected that anything new could be added to what is already known about these plants; but in an appendix is given a list of the Gaelic names of the various species supplied by the editor of the *Scottish Naturalist*. The coloured plates are exceedingly good and characteristic; but surely it should have been stated that they are taken from Sowerby's "English Botany." The volume is a pretty one to lie on the drawing-room table. A. W. B.

Lehrbuch der Mineralogie. Von Dr. G. Tschermak. I. Lieferung. (Wien: Alfred Hölder, 1881.)

IT is with great pleasure that we have received this instalment of Prof. Tschermak's work, and also learnt from the publisher's introductory note that the rest of the book may be expected during the course of a year. The work is sketched somewhat on the lines of Naumann's well-known "Elemente der Mineralogie," but follows Miller's Mineralogy in the wider scope given to mineral physics. The present number is introductory, and treats of descriptive crystallography, crystal-structure, general mineral physics, and includes a considerable portion of mineral optics. In the crystallography the Millerian notation and the stereographic projection are employed, and the systems are developed from the principle of symmetry in a clear and simple manner. Prof. Tschermak has adopted the four-plane axial system in the rhombohedral system, which is sometimes designated the Bravais-Miller system. Possibly this may appear to non-mathematical students simpler, and may to a certain extent be more easily mastered, but we feel sure that in its practical application to crystallographic problems it does not possess either the elegance or conciseness of the three-plane axial system selected by Prof. Miller. We feel also that it is most unfair to Prof. Miller's memory to attach his name, even in a double-barrelled way, to a system which he steadily refused to adopt. The theories and facts of twin and mimetic crystals are carefully expounded. These constitute a branch of mineralogy which has become of the utmost importance since the application of the microscope in the investigation of the optic properties of minerals. Other sections, which are especially good, are those on mineral inclusions, on the hardness and etching of crystal faces. These contain a large amount of information which is rarely to be found except by a laborious search through scientific periodicals. The book is divided into sections, each dealing with its separate subject, and at the end of each section is a list of the more important literature of the subject. The work so far is excellent, and if, as we have every reason to expect, it be carried through in an equally satisfactory manner, we shall possess a text-book in keeping with the reputation of its author and worthy of the school to which he belongs. W. J. LEWIS

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

Panizzi and the Royal Society

THE "Life of Panizzi" by his friend and colleague, Mr. Louis Fagan,¹ is marked by a tone of indiscriminate adulation which disfigures many specimens of modern biography. The hero is perfect, and they who think otherwise are dismissed with words of contempt, or are admonished to go and meditate on their wicked ways and then return in repentant mood to the community of hero-worshippers.

In the Royal Society's treatment of Panizzi, Mr. Fagan endeavours to justify another example of the wolf and the lamb, although it must be owned that in the pamphlets² from which the biographer quotes, the lamb's bleatings are sufficiently energetic to lead to the conclusion that he thought himself a match for the wicked wolf.

Mr. Fagan thinks it important "that Panizzi's stormy connection with the Royal Society should be fairly and impartially" stated; although how this can be done without hearing both sides he forgets to say; and yet he professes to give "the proper elucidation of the facts," "the whole circumstances of the case thoroughly weighed and dwelt upon"; how successfully he opposed "the force with which it was attempted to crush the evidence of his superior talent" (vol. i. p. 119), and although "thwarted and impeded at every step, Panizzi at last succeeded in once again proving that right can contend successfully with might" (vol. i. p. 130).

The reader will gain a very lop-sided idea of this quarrel if he trust to Mr. Fagan's account alone; and as in the reviews of this book no one has attempted to ascertain the truth of the matter (which indeed could not be done without access to the Royal Society's papers), I venture, as a member of the present Library Committee, to state the case from the other side, being naturally anxious to sustain the reputation, so unjustly assailed, of a former committee which contained the honoured names of Baily, Beaufort, Children, Greenough, Lubbock, Murchison, Peacock, Roget, and others.³

To make a long story short, it is sufficient to state that about the year 1832 the Royal Society wished to bring out a complete catalogue of the books, &c., in its library. As a preliminary step, a list of the mathematical books was compiled and set up in type as a specimen of the kind of work required. In the words of a Council minute, the sheets were "not designed for publication," they being "in a very rough and unfinished state."

In October, 1832, Dr. Roget meeting Mr. Panizzi at dinner, informed him of the Society's intention, and requested him to look over and revise the sheets in question, together with others that might afterwards be forthcoming. This was agreed to, and the first sheets were forwarded to Panizzi, who found so many errors in them that, as he informed Dr. Roget, "although I would never attempt to correct what had been already done, I was ready to undertake a new compilation."

Accordingly on October 16, 1832, the Library Committee resolved to recommend to the Council that Mr. Panizzi be engaged to make a new catalogue according to the mode to be agreed upon by the Committee, he to be paid 30*l.* for every thousand titles, the whole remuneration, however, not to exceed 500*l.*

¹ "The Life of Sir Anthony Panizzi, K.C.B." By Louis Fagan. Two vols., 8vo, 1880.

² "A Letter to H.R.H. the President of the Royal Society, on the New Catalogue of the Library of that Institution now in the Press." Pp. 56 and 37. Signed A. Panizzi, and dated January 28, 1837. The last three pages contain a postscript letter to the President, dated November 4, 1837, and a note in which it is stated that the pamphlet was not put into circulation until the latter date, in order that H.R.H. might have an opportunity of replying to it.

³ The President, not having availed himself of this opportunity, the second pamphlet was put forth. It is entitled "Observations on the Address by the President, and on the Statement by the Council to the Fellows of the Royal Society respecting Mr. Panizzi, read at the general meeting, November 30, 1837." Pp. 24. Dated December 22, 1837.

⁴ Strictly speaking there were three committees, namely, one for the catalogue, a second for the library, and a third for deciding in doubtful cases under what division a book should be placed in the new catalogue.